THE COMPARATIVE RESULTS OF WEIGHTS AND ESTIMATES OF COAL IN THE HOCKING VALLEY.

BY W. H. JENNINGS.

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Last year I gave some figures showing weights of coal mined from one of the mines in the Hocking Valley, giving the tonnage as derived,

First, by weights at the mines;

Second, by weights of the Railway Companies;

Third, by measurement.

The results obtained by the three methods were so remarkably close that our President thought it a coincidence only, and not likely to again occur.

During the past year I have been enabled to continue the record from this mine and also from two or three others, receiving reports daily from each of these mines, giving the weights of each car of lump coal weighed on the scales at the mines, and afterward, (generally upon the same day,) as weighed by the Railway Company on its scales in the Nelsonville yard; and while there may have been slight differences in the weights of each car in the long run, they agree very closely.

You will observe that in every case, save one, the weights of lump coal are greater by the mine than by the Railway scales. The difference is so small, however, taking the total weight into consideration, that it may be accounted for by the coal losing some weight, either by a few hours drying in the sun and air, or by the shaking off of a few pounds while in transit between the scales. It shows, however, that the miner is receiving full weight and the weight for "royalty" is greater than the weight for "freight."

Through my assistant, Mr. H. B. Van Atta, who has with great care and good judgment taken the notes and computed the cubical contents of space mined each month, (estimating thirty-seven (37) cubic feet of space mined to be equal to one (1) ton of lump coal,) I am enabled to give the following results, and also include in the tables the other grades of coal:

MINE NO. 1. "PICK MINE."

Omitting Slack. Including Slack.

1885.	Cub. feet per Ton	LUMP. %	LUMP. Tons.	NUT. %	NUT. Tons.	PEA. %	PEA. Tons.	TOTAL. %	TOTAL. Tons.	SLACK Tons.	TOTAL. Tons.
Mine Weight	37.16	82 4	94,736	11.4	13,112	6 2	7,185	100	115,033	6,051	121,084
Railway Weight	37.15	82.1	94,783	11.4	13,102	6 5	7,498	100	115,383	5,774	121,157
Measurement	37.00	83 3	95,157	11.1	12,687	5.6	6,343	100	114,187	12,687	*126,874
1886.											
Mine Weight	36 89	83.1	85.256	13.3	13,705	3 6	3,693	100	102,654	7,171	109,825
Railway Weight	36.99	83 3	85,024	13.1	13,384	3 6	3,601	100	102.009	6,948	108,947
Measurement	37.00	83 3	85,010	11.1	11,332	5.6	5,668	100	102,010	11,332	*113,342
1885 and 1886.											
Mine Weight	37.04	82.7	179,992	12.3	26,817	5.0	10,878	100	217,687	13,222	230,909
Railway Weight	37 07	82.7	179,807	12.2	26,486	5.1	11.089	100	217,382	12,722	230,104
Measurement	37.00	83.3	180,167	11.1	24,019	5.6	12,011	100	216,197	24,019	*240,216

MINES NO. 2 AND 3. LEGG MACHINE MINES.

Omitting Slack. Including Slack.

1886.

Mine Weight	37.40	89.2	79,492	10.8	9,661	....	Pea used under boiler.	100	89,153	7,265	96,418
Railway Weight	37.87	88.8	78,757	11.6	9,963	....	Omit in total	100	88,720	7,640	96,360
Measurement	37.00	88.2	80,631	11.8	10,751	....		100	91,382	10,751	*107,508

MINE NO. 4. HARRISON MACHINE MINE.

Mine Weight	38.09	81.1	46,136	12.6	7,195	6.3	3,592	100	56,923	634	57,557
Railway Weight	38.59	80.8	45,536	12.8	7,208	6.4	3,609	100	56,353	638	56,991
Measurement	37.00	83.3	47,497	11.1	6,333	5.6	3,166	100	56,996	6,333	*63,329

SUMMARY. MINES NO. 1, 2, 3 and 4.

Mine Weight	37.32	87.5	305,620	12.5	43,673	Omitted.	14,470	100	363,763	21,121	384,884
Railway Weight	37.51	87.4	304,100	12.6	43,657		14,698	100	362,455	21,000	383,455
Measurement	37.00	88.2	308,295	11.8	41,103		*5,875 15,177	100	364,575	41,103	*411,058

* Shows the *full* amount which was possible to have been shipped.

In a former paper on "Exhaustive Mining" I gave the percentage of the several grades of coal as follows:

Lump	76
Nut	12
Pea	6
Slack	9
Total	100

During the past year one of the mines shipped, for a period of five months ALL of its coal, including the slack, the only instance when this has been done, for so long a time of which I am aware, in the Hocking Valley. The percentage of slack was, during this period ten and two-tenths (10.2). From the observations of the past year, I have adopted the following as a percentage basis and have used the same in these tables:

		Omitting Slack.	Omitting Pea & Slack.
Lump	75	83.3	88.2
Nut	10	11.1	11.8
Pea	5	5.6	....
Slack	10	....	....
Total	100	100.0	100.0

This is a very convenient basis as it is only necessary to vary the Pea, which is a very uncertain quantity to fit almost any state of things. If you have an excess of Nut you have been robbing the Pea; and the same can be said of the Pea and Slack. I am convinced, however, that this per centage is very nearly the practical working in the Hocking Valley, when the screens in use have a width between screen bars of $1\frac{1}{4}$ to $\frac{3}{8}$ and $\frac{3}{8}$ inches. This, of course, does not include what is left in the mine and goes into ihe "Gob." The Lump coal is about sixty-six (66) per cent. of the cubical contents.

Mines Nos. 2, 3 and 4 do not make as good a showing in yield of Lump coal as they should or will make during this year, partly on account of an excess of "Bone coal," which was thrown away and which is now less in quantity, and partly on account of "Entry work," the entries yielding less Lump than the rooms. This was very noticeable in comparing the first six months, when the mining was all entry, and the last six months when about half the coal was mixed from rooms, the former falling behind the estimate and the last very nearly equaling it.

My object in making these investigations has been to establish a basis for the settlement of any questions which may arise in relation to "trespass" or "royalty." I have been especially fortunate in that, during the period covered by these records. No controversies have arisen nor has there been any vital issue at stake which could be suspected of having an undue influence upon the findings. The matter thus resolved itself into one merely of observation and calculation.

From the results given above, showing the weights by mine and Railway scales as practically agreeing and each very nearly approximating the amount obtained by measurement, we conclude that the basis of 37 cubic feet of space mined is equal to one ton of lump coal and with the percentage of grades of coal above given, fairly well represents the practical working of the mines of the Hocking Valley.